



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/322,283	05/28/1999	DAVID L. ROLLINS	12-0895	7766
27160	7590	05/20/2005	EXAMINER	
KATTEN MUCHIN ROSENMAN LLP			SEDIGHIAN, REZA	
525 WEST MONROE STREET				
CHICAGO, IL 60661-3693			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/322,283

Applicant(s)

ROLLINS, DAVID L.

Examiner

M. R. Sedighian

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-15 and 18-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-15 and 18-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2/3/05.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

1. This communication is responsive to applicant's 11/22/04 amendment in the application of David L. Rollins. The amendment have been entered. Claims 12-15 and 18-21 are now pending.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jabr (US Patent No: 6,229,632) in view of Piehler et al. (US Patent No: 5,940,196), or Roberts (US Patent No: 6,252,692), or Franck et al. (US patent No: 5,917,638) and in further view of Rutledge (US Patent No: 5,864,625).

Regarding claim 12, Jabr teaches an optical system (fig. 2) comprising: an optical transmitter (col. 3, lines 25-28), the optical transmitter including an optical modulator (5, fig. 2) for modulating an RF input signal (col. 3, lines 58-64) onto an optical carrier signal having multiple wavelengths (col. 3, lines 58-60 and 1, 2, fig. 2) and providing RF modulated optical signals (col. 3, line 59); an optical receiver for demodulating the multiple RF modulated optical signals and providing multiple RF output signals (col. 3, lines 37-39), wherein the optical receiver including a control circuit having a wavelength division demultiplexer (11, fig. 2) for demultiplexing the RF output signals and generating multiple optical signals at each of the multiple wavelengths (col. 3, lines 43-46), the control circuit also including a multiple photodetectors (12, 13, fig. 2) for converting the multiple optical signals to multiple electrical

Art Unit: 2633

signals (col. 3, line 45) and a summing junction (14, fig. 2) for subtracting the multiple electrical signals to provide an output signal (col. 3, lines 45-48). Jabr further teaches an optical link (4, 10, fig. 2) that connects the transmitter to the receiver (col. 3, lines 29-30, 35-37). Jabr differs from the claimed invention in that Jabr does not disclose an optical modulator with a single output port for transmitting the RF modulated output signal on a single output port. However, optical signal modulators receiving multiple signal inputs and having a single output port are well known in the art. For example, Piehler teaches an optical modulator (86, fig. 5) that receives a multiplex optical signal input and a RF signal input (RF, fig. 5), wherein the optical modulator has one single output port (the output port of the modulator 86 that is connected to fiber span 90). Likewise, Robert teaches an optical modulator (optical modulator, fig. 5) that receives a multiplexed signal input and a light signal (col. 7, lines 52-55), wherein the optical modulator has one single output port (the output port of the modulator that is connected to optical amplifier). Franck teaches an optical modulator (55, fig. 12) that receives different input data signals (50, 121, fig. 12) and having a single output port (57, fig. 12). Therefore, it would have been obvious to an artisan at the time of invention to incorporate an optical modulator with a single output port such as the ones of Piehler or Robert or Franck for the optical modulator of Jabr in order to transmit the data signals optically. The modified optical data transmission and modulation system of Jabr and Piehler or Robert or Franck further differs from the claimed invention in that Jabr and Piehler or Roberts or Franck do not disclose a free space optical link connecting the optical transmitter and the optical receiver. Rutledge, from the same field of endeavor, teaches an optical transmitter (200, fig. 1) for transmitting an optical modulated signal (204, 208, fig. 1) and an optical receiver (300, fig. 1) that are connected by a free space optical

Art Unit: 2633

link (col. 3, lines 1-5 and 50, fig. 1). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to connect the optical transmitter and the optical receiver of Jabr by a free space optical link, as it is taught by Rutledge, in order to optically transmit the information signals.

4. Claims 13-15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jabr (US Patent No: 6,229,632) in view of Piehler et al. (US Patent No: 5,940,196), or Franck et al. (US Patent No: 5,917,638) and in further view of Sieben et al. (US Patent No: 5,880,870).

Regarding claim 13, Jabr teaches an optical system (fig. 2) comprising: an optical transmitter (col. 3, lines 25-28) including an optical modulator (5, fig. 2) for modulating an RF input signal (col. 3, lines 58-64) onto an optical carrier signal having multiple wavelengths (col. 3, lines 58-60 and 1, 2, fig. 2) and defining RF modulated optical signals (col. 3, line 59); an optical receiver for demodulating the multiple RF modulated optical signals and providing multiple RF output signals (col. 3, lines 37-39), wherein the optical receiver including a control circuit having a wavelength division demultiplexer (11, fig. 2) for demultiplexing the RF output signals and generating multiple optical signals at each of the multiple wavelengths (col. 3, lines 43-46), the control circuit also including a multiple photodetectors (12, 13, fig. 2) for converting the multiple optical signals to multiple electrical signals (col. 3, line 45) and a summing junction (14, fig. 2) for subtracting the multiple electrical signals to provide an output signal (col. 3, lines 45-48). Jabr further teaches an optical link between the transmitter and the receiver (4, 10, fig. 2). Jabr teaches the modulator has an input port (the input port that gets the multiplexed signal from fiber 4) and an output port (the output of modulator 5). Jabr differs from the claimed

Art Unit: 2633

invention in that Jabr does not specifically disclose generating RF modulated optical signals at a single output port and transmitting the RF modulated output signals on a single output port.

Piehler teaches an optical modulator (86, fig. 5) that receives a multiplex optical signal input, and a RF signal input (RF, fig. 5), wherein modulated RF signal is outputted on a single output port (col. 6, lines 35-45). Likewise, Franck teaches an optical modulator with multiple data input signals (50, 121, fig. 12), a bias input (56, fig. 12) and a single output port (57, fig. 12).

Therefore, it would have been obvious to an artisan at the time of invention to incorporate an optical modulator with a single output port such as the ones of Piehler or Franck for the optical modulator of Jabr in order to transmit the data signals optically. The modified optical transmission and modulation of Jabr and Piehler or Franck further differs from the claimed invention in that Jabr and Piehler or Franck do not specifically disclose the external modulator have a RF input port, a bias voltage input port, and a single output port. Sieben teaches an optical transmission system (fig. 1) that is comprised of an external Mach-Zehnder modulator (14, fig. 1 and 33, fig. 3) having an RF input port ($V_1(t)$, fig. 3), a bias voltage input port ($V_2(t)$, fig. 3), an optical carrier input port (E_{IN} , fig. 3, the port that gets the optical signal from laser), and a single output port (E_{OUT} , fig. 3, the single output port of modulator 33). Therefore, it would have been obvious to artisan at the time of invention to incorporate a Mach-Zehnder modulator such as the one of Sieben for the modulator in the modified optical data transmission and modulation system of Jabr and Piehler or Franck in order to transmit the data signals optically.

Regarding claim 14, Jabr teaches the optical transmitter includes a WDM (3, fig. 2), a plurality of sources of carrier signals (1, 2, fig. 2) at different wavelengths (col. 3, lines 58-59).

Regarding claim 15, it requires similar limitations as recited in claim 13 above.

Regarding claim 18, Jabr teaches a demultiplexer (11, fig. 2), a plurality of photodetectors (12, 13, fig. 2), and a summing junction (14, fig. 2).

5. Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jabr (US Patent No: 6,229,632) in view of Piehler et al. (US Patent No: 5,940,196), or Franck et al. (US Patent No: 5,917,638) and in view of Sieben et al. (US Patent No: 5,880,870) and in further view of Webb (US Patent No: 6,163,394).

Regarding claims 19-21, the modified optical transmission system of Jabr and Piehler, or Franck and Sieben differs from the claimed invention in that Jabr and Piehler, or Franck and Sieben do not disclose one or more amplifiers. Webb teaches an optical transmitter (10, fig. 2) that generates optically modulated signal (22, fig. 2) wherein the modulated signal is amplified (38, fig. 2). It is well known to incorporate optical amplifiers along the transmission lines, or connecting an optical amplifier to a transmitter, or to a receiver in order to boost the signal strength to further increase the transmission distance. Therefore, it would have been obvious to an artisan at the time of invention to incorporate optical amplifiers such as the one of Webb along the transmission line in the modified optical transmission system of Jabr and Piehler, or Franck and Sieben in order to amplify and boost the signal strength.

6. Applicant's arguments with respect to claims 12 and 13 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 2633

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. R. Sedighian whose telephone number is (571) 272-3034. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2633

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M. R. Sedighian
M. R. SEDIGHIAN
PRIMARY EXAMINER